AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph bridging pages 6 and 7 with the following paragraph:

"   A process 10 for producing metabolic genotypes from an organism is shown in Figure 1. Beginning at a start state 12, the process 10 then moves to a state 14 to obtain the genomic DNA sequence of an organism. The nucleotide sequence of the genomic DNA can be rapidly determined for an organism with a genome size on the order of a few million base pairs. One method for obtaining the nucleotide sequences in a genome is through commercial gene databases. Many gene sequences are available on-line through a number of sites ~~(see, for example, www.tigr.org)~~ and can easily be downloaded from the Internet. Currently, there are 16 microbial genomes that have been fully sequenced and are publicly available, with countless others held in proprietary databases. It is expected that a number of other organisms, including pathogenic organisms will be found in nature for which little experimental information, except for its genome sequence, will be available.

Please replace the paragraph bridging pages 13 and 14 with the following paragraph:

"   Using the methods disclosed in Figures 1 and 2, an *in silico* strain of *Escherichia coli* K-12 has been constructed and represents the first such strain of a bacteria largely generated from annotated sequence data and from biochemical information. The genetic sequence and open reading frame identifications and assignments are readily available from a number of on-line locations (ex: www.tigr.org). For this example we obtained the annotated sequence from the following website for the *E. coli* Genome Project at the University of Wisconsin (~~http://www.genetics.wisc.edu/~~). Details regarding the actual sequencing and annotation of the sequence can be found at that site. From the genome annotation data the subset of genes involved in cellular metabolism was determined as described above in Figure 1, state 20, comprising the metabolic genotype of the particular strain of *E. coli*. "